



No. 1014	<b>AUTHOR:</b> Steven E. Backs, Wildlife Research Biologist	<b>Date</b> 12/21/10
	<b>TITLE:</b> 2010 Wild Turkey Brood Production Indices.	

*Abstract: The statewide mean of 2.1 poult:hen (PI) observed was lower than the 2.5 PI of the 5 prior summers (2005 - 2009) and was the lowest production index since the survey began in 1993. The proportion of hens observed with poults was 71%, also lower than the previous 5 years. The 2010 production was the 6<sup>th</sup> consecutive year below the long term average trend and the record high production in 2004. The general decreasing trend (1993-2010) in the annual summer production of wild turkeys is indicative of a population whose growth rate has leveled off to "maintenance" or stable population level. Above normal precipitation during 5 of the last 6 Junes has also likely influenced the downward trend.*

**Project/Activity Codes: 300FW1W36R01000/W36R510**

## METHODS

In 2010, district wildlife biologists and conservation officers recorded observations of wild turkey hens and poults during July and August. The wild turkey summer brood Production Index (PI) is the total poults/total adult hens (poults:hen ratio) compiled from July and August into one combined index. The August production index is generally higher than in July due to "gang" brood behavior that occurs when several individual broods and hens without broods combine into a single brood flock.

## RESULTS and DISCUSSION

A total of 343 observation cards was received for the July and August reporting period with 170 cards reporting at least one turkey observation (Table 1). The 2010 production index was 2.1 poults:hen with 71% of the hens observed with at least 1 poult. The production values were lowest values observed since the survey began in 1993 (Figure 1). The average size of the 320 broods reported (hens + poults per brood observation) was 8.8 birds. A chronic bias in the observation data, that is difficult to assess, is the tendency of some observers to report hens with poults more so than "barren hens". The reporting bias would result in a higher PI than actually occurred, thus the reason for including all adult hens in determining the production index.

The 2.1 poults:hen (PI) was again below the 17 year mean (1993-2009) and below ( $P < 0.05$ ) the confidence limits of the 5 year mean (Table 2; Figure 2). Since 1993, the annual PI has generally declined, evident in the long term trend line, with the last 6 years falling below the trend line. The downward trend in the PI is considered indicative of a wild turkey population as it makes the transition from a colonizing, reestablishing population with geometric growth to an established population where the annual production and growth rates level off to maintenance levels characteristic of a stabilized population. The lower level of annual production and population growth should be considered in future harvest management decisions.

Regional production summaries (Figure 3) are very limited in their interpretation due to lack of brood observations reported in some regions (e.g., east-central,  $n = 2$ ). Other potential biases included differences in the potential number of observers and brood detection rates among regions due to vegetation, road density and topographic differences. Climatically, precipitation was again above normal throughout much of the turkey range during June 2010 (normal early brood period) as it has during the 5 out of the last 6 years.

**Table 1. Indiana wild turkey brood production - Summer 2010.**

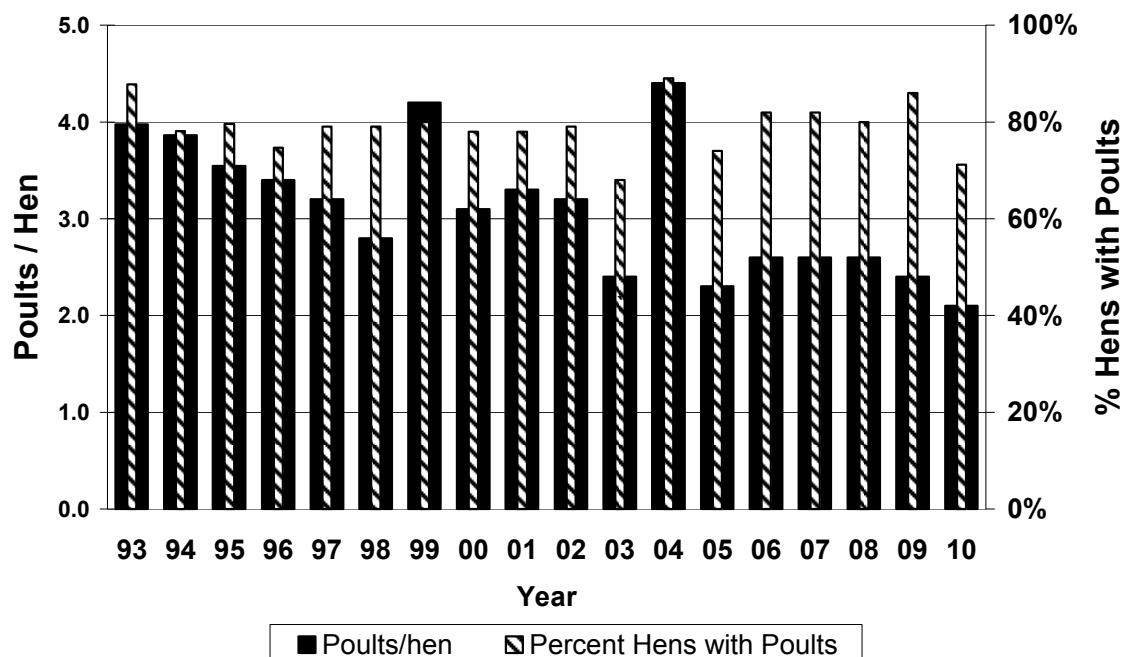
July & August Combined	Adult Hens	No. of Poults	Brood Size *	Poults/ Hen	Total Number of Cards = 343 Cards with $\geq 1$ brood observation = 170 Percent hens with broods = 71%
Totals	953	1991		2.1	
Means	2.1	6.2	8.8	3.7 **	
No. of Observations	451	320	283	320	
SE=	0.09	0.31	0.40	0.23	
Jul-10	Adult Hens	No. of Poults	Brood Size *	Poults/ Hen	Total Number of Cards = 177 Cards with $\geq 1$ brood observation = 81 Percent hens with broods = 77%
Totals	466	1022		2.2	
Means	2.1	7.0	8.9	4.1 **	
No. of Observations	226	146	146	146	
SE=	0.09	0.35	0.39	0.21	
Aug-10	Adult Hens	No. of Poults	Brood Size *	Poults/ Hen	Total Number of Cards = 166 Cards with $\geq 1$ brood observation = 89 Percent hens with broods = 64%
Totals	487	969		2.0	
Means	2.2	5.6	8.5	3.3 **	
No. of Observations	225	174	137	174	
SE=	0.10	0.28	0.41	0.25	

\* Brood size = all hens + all poults observed as a group at one time

\*\* The mean poults/hen calculated using only those observations where hens were observed with broods.

The total poults/total hens observed each month; July + August = annual Production Index (PI).

**Figure 1. Wild Turkey Brood Production**



**Table 2. Indiana wild turkey production indices, 1993-2010.**

Year	Poults : Hen <sup>a</sup>	% Hens with poults	No. of Observations
93	4.0	88%	101
94	3.9	78%	175
95	3.5	80%	121
96	3.4	75%	142
97	3.2	79%	126
98	2.8	79%	134
99	4.2	80%	229
00	3.1	78%	227
01	3.3	78%	313
02	3.2	79%	338
03	2.4	68%	312
04	4.4	89%	597
05	2.3	74%	240
06	2.6	82%	477
07	2.6	82%	477
08	2.6	80%	328
09	2.4	86%	311
<i>05-09 Mean &amp; SE <sup>b</sup></i>	2.5 (0.063)	80.8% (0.020)	424
<b>10</b>	<b>2.1 *</b>	<b>71%</b>	<b>320</b>

<sup>a</sup> The production index (PI) is the total poults/total hens observed for July and August = annual production index.

<sup>b</sup> Production Index Mean (*Standard Error*) for 5 previous years.

\* Annual production index less than mean of previous 5 years ( $P < 0.05$ ).

Figure 2. Wild Turkey Production - Indiana

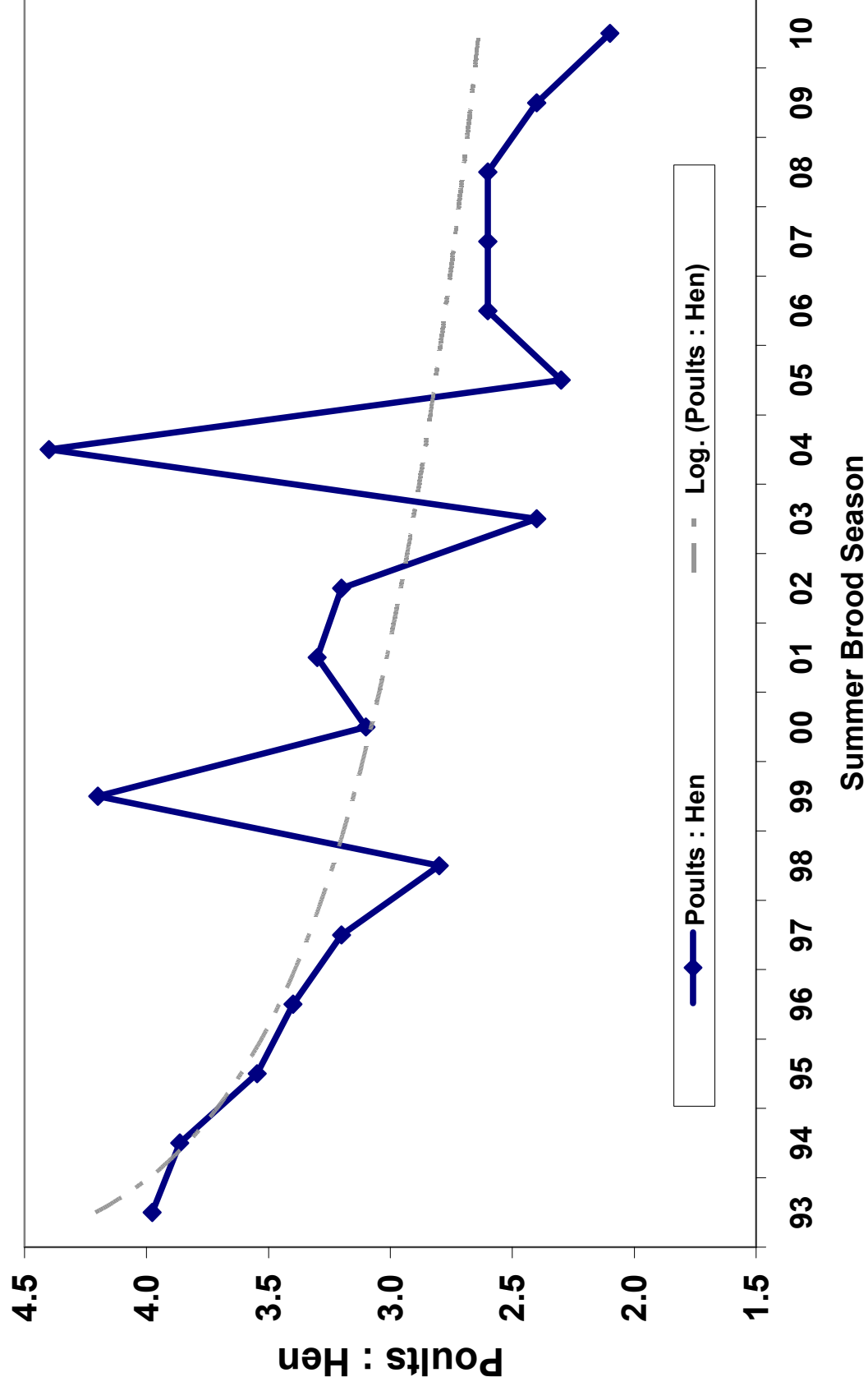


Figure 3. 2010 Summer Wild Turkey Production by Regions

